TUBERCULOSIS EXPOSURE CONTROL PLAN
For
LONG TERM CARE FACILITIES

REVISED JANUARY 1999

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PURPOSE

This document has been produced to provide standard tuberculosis (TB) screening and surveillance guidelines for long term care facilities. It is based on the Centers for Disease Control and Prevention guidelines, Prevention and Control of Tuberculosis in Facilities Providing Long Term Care to the Elderly, 1990, MMWR 1990; Vol 39 (No. RR-10). In this document, long term care facilities include nursing homes, long-term care units in hospitals, adult foster care homes, board and care homes, and other congregate settings for the elderly. Facilities which provide care for infectious tuberculosis patients on-site should insert procedures and policies for managing infectious tuberculosis patients into these guidelines.

GOAL

It is the goal of all long term care facilities to assure that appropriate tuberculosis prevention and control activities are undertaken to protect residents and staff.

The Infection Control Committee is responsible for implementation of the facility's TB Control Plan. Each facility should assign an appropriate member to oversee implementation of the TB Control activities of surveillance, containment, assessment, and education.

Components:

There are four components to the TB Control Plan:

1. *Surveillance:*

   Identifying and reporting all cases of TB in the facility, and identifying all infected residents and staff.

2. *Containment:*

   Ensuring that transmission of TB is stopped promptly.

3. *Assessment:*

   Monitoring and evaluation of the surveillance and containment activities of the facility.

4. *Education:*

   Providing information and imparting skills to staff, patients, and visitors so that they understand and cooperate with appropriate TB Control Activities.

I. SURVEILLANCE

A. Diagnosis of Infection

The intradermal administration of 0.1 ml of 5TU strength purified protein derivative (PPD) tuberculin (the Mantoux test) is to be used to identify persons infected with TB. Multiple puncture tests are not acceptable. Mantoux tests should be administered and read by appropriately trained personnel[1] and the results recorded in millimeters of induration in the individual's medical record. Attachment A, Guidelines for Interpretation and Follow-up of TB Skin Test Reactions in California.

*Note: A*nergy Testing: The use of anergy testing in conjunction with tuberculin skin testing is no longer recommended routinely for TB screening in HIV-infected persons in the United States. Because persons who are HIV-infected may have false negative skin tests, those with negative TB skin tests should discuss their results with a physician.

(1) Residents (See Diagram 1)

Baseline:

A Mantoux TB skin test should be administered to all new residents within 7 days of their admission, unless they have documentation[2] of a previous positive Mantoux test.

All residents who test positive should be referred for a chest x-ray and evaluation by their physician. Evaluations should be performed to rule out active TB and for consideration of preventive therapy. If a resident has symptoms consistent with active pulmonary TB, follow guidelines in the Containment Section.

In order to establish a reliable baseline, a two-step skin test procedure is advisable for the initial testing of residents aged 55 and older, who have not had recent testing (Attachment B, Two-Step Tuberculin Skin Tests).

Annual Testing:

Residents with a Negative Skin Test:

[1] Has completed specific training in how to apply and read tuberculin skin tests using the Mantoux method.

[2] Documentation should be written and should include the following: Type of test (Mantoux vs. multiple puncture); date of test; and millimeters of induration.

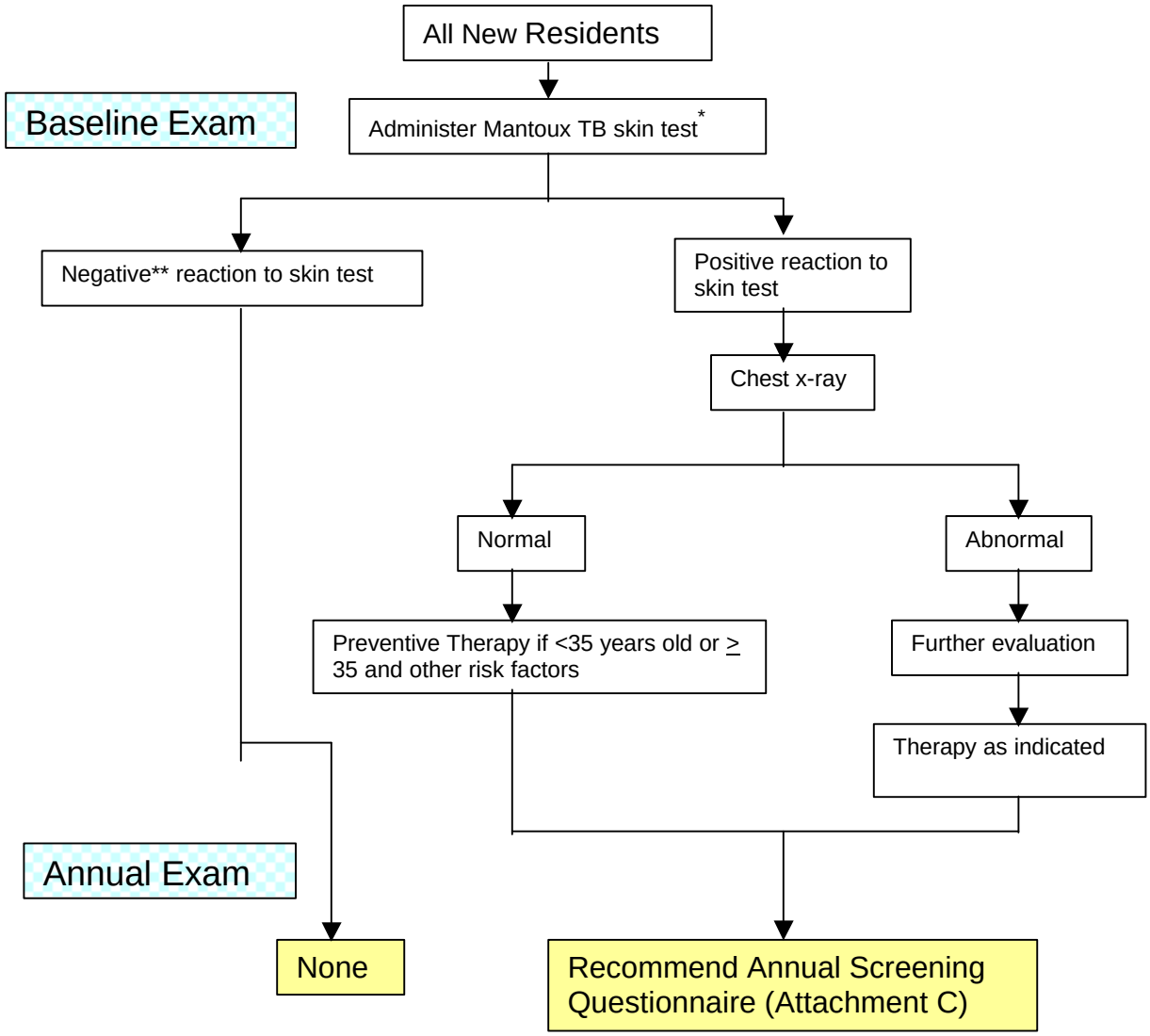
Routine testing of residents who have a negative Mantoux skin test is not necessary.

Residents with a Positive Skin Test:

Residents with a positive Mantoux skin test should be screened annually with a TB symptom questionnaire. (Attachment C, Resident Annual Tuberculosis Screening Questionnaire). The questionnaire should be done at the time of the resident's annual medical evaluation. This is an awareness tool to remind staff about persons at risk for TB and to maintain familiarity with TB symptoms. If a resident becomes symptomatic, early identification may be enhanced .

Diagram 1

Screening for Residents in Long Term Care Facilities



* Unless resident has written documentation of a past positive Mantoux

** Consider two-step test

(2) Staff and Volunteers[3]

Baseline:

A Mantoux TB skin test should be administered to all new staff and volunteers, unless they have documentation[2] of a previous positive Mantoux test. This exam must be completed within one week of employment. (Attachment D, Title 22, Section 70723).

In order to establish a reliable baseline, a two-step procedure is advisable for the initial testing of staff aged 55 and older who have not had a documented negative test in the past year.

Staff/volunteers who test positive should be referred for a chest x-ray and evaluation by their physician to rule out active TB. Some staff/volunteers may be candidates for preventive therapy (in general, persons ≤ 34 years old or ≥35 years old with certain medical risk factors). If the staff/volunteer is symptomatic for active pulmonary TB, follow guidelines in the Containment Section.

Annual Testing:

Staff/Volunteers with a negative skin test:

Those who have negative Mantoux skin test should have a repeat test annually.

Staff/Volunteers with a positive skin test:

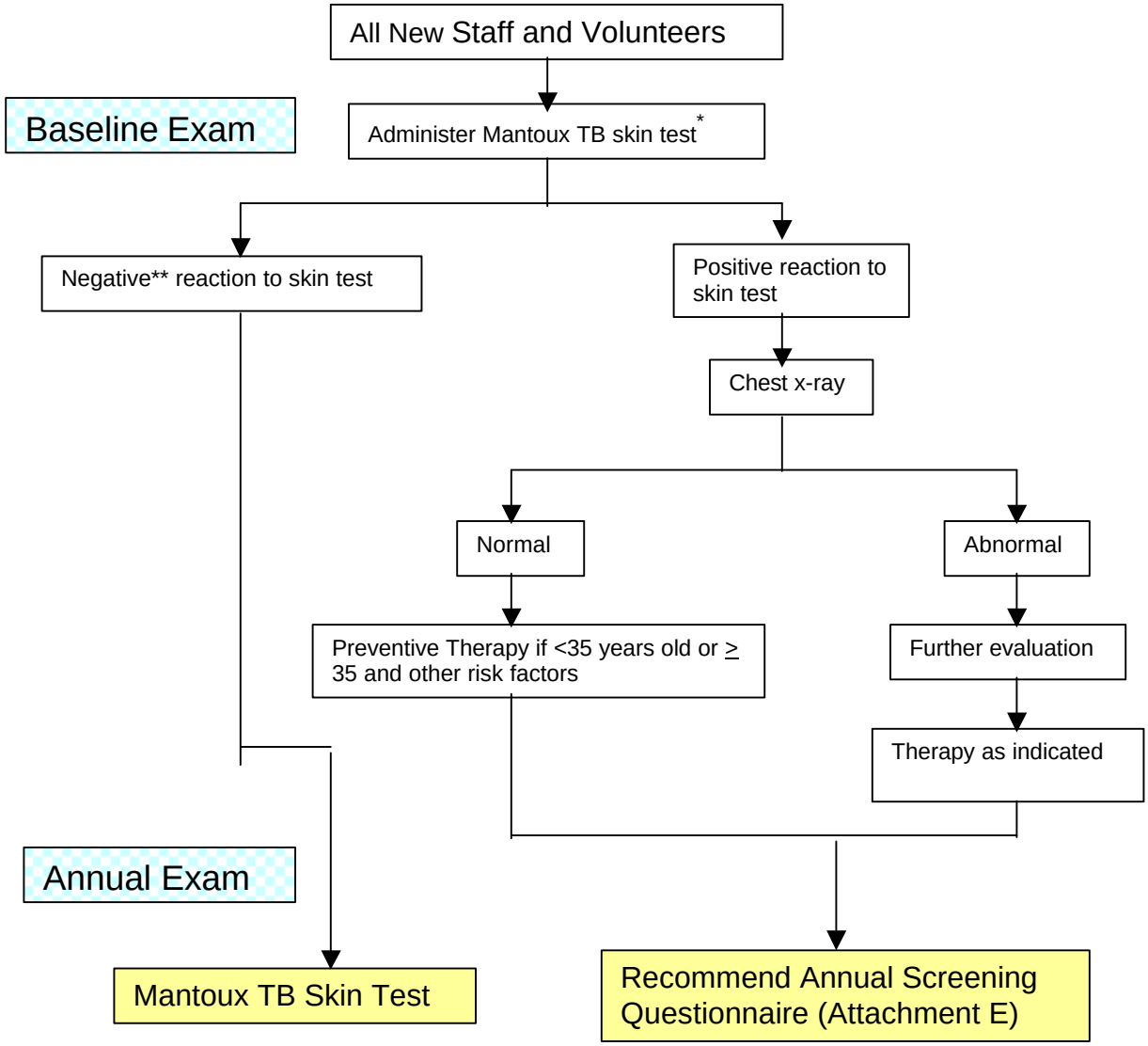
Those who have a positive Mantoux skin test should be screened annually with a TB symptom questionnaire. (Attachment E, Employee Annual Tuberculosis Screening Questionnaire). This is an awareness tool to remind staff that they are at risk for TB. If they become symptomatic, early identification may be enhanced.

Note: Routine annual chest x-rays of persons with positive skin tests are not indicated. Chest x-rays should be performed if a known reactor develops symptoms consistent with active TB.

Diagram 2

[3] Volunteers who have an average of ≥ 10 hours of contact per week with residents should be tested annually.

Screening for Staff and Volunteers in Long Term Care Facilities



* Unless staff/volunteer have written documentation of a past positive Mantoux

** Consider two-step test

B. Reporting

Report, within 24 hours of knowledge, any resident, staff, or volunteer who is suspected or confirmed to have active TB. To report a case, call the County of San Diego TB Control Program at 692-8610. Reporting is required under the California Health and Safety Code. The TB Control Program will provide assistance regarding treatment, containment and exposure follow-up for all reported cases.

Skin Test Converters:[4]

There is no requirement to report persons who convert their skin tests upon repeat testing to the TB Control Program.

However, converters are candidates for preventive therapy and should be sent for a medical evaluation. In addition, if there is concern about multiple conversions within a facility, TB Control should be consulted.

II. CONTAINMENT

In long term care settings, many residents have chronic pulmonary conditions which can produce symptoms consistent with TB. The following guidelines provide assistance in evaluation of persons to identify suspect pulmonary TB cases.

A. Residents with a Negative Tuberculin Skin Test

Persons with a negative skin test can have active TB. Therefore, pulmonary TB should be considered in any person with suggestive symptoms regardless of skin test status.

Residents who develop the following need further followup:

- Hemoptysis, or
- Cough for ≥ 2 weeks, and two or more of:
  - Fever that lasts more that 1 week;
  - Sputum production for more than 1 week;
  - Feeling of fatigue for more than 2 weeks;
  - Night sweats (heavy perspiring thru pajamas and sheets);
  - Unexplained weight loss (approx. 10% or more of usual body weight)

[4] Converters can be defined as those whose skin test reaction has been documented to have converted from <10mm to ≥10mm within the past 2 years, and has increased in size by at least 10mm.

A physician should be consulted and the patient examined. The physician should indicate a diagnosis, document any chest x-ray findings, and a plan for follow-up. If symptoms persist or worsen, the physician should be notified. If TB is part of the differential diagnosis, 3 sputums should be collected on 3 consecutive days and sent on the day collected. The lab should be called for smear[5] result within 2 days for each specimen.

If any of the sputums are smear positive, the person should be considered a suspect infectious TB case and be placed in respiratory TB isolation until they are on medicine and have clinical and bacterial evidence that they are no longer infectious (usually 3 consecutive negative AFB smears). If isolation is not possible, the resident must be transferred to a facility that can provide TB isolation. The resident may return when they have become non-infectious, and are on a Health Department approved TB treatment regimen. (See Section II, E. ISOLATION).

Residents whose three sputums for AFB are all negative, may stay in the facility. They may be started on TB treatment, if they clinically appear to have TB, until culture results are known. ***If a resident is diagnosed with TB, call TB Control to assure the case has been reported.***

B. Residents with a Positive Tuberculin Skin Test

Staff should be aware of which residents are known to be infected with TB, so that they will remain alert to early symptoms of pulmonary TB. The resident's TB skin test result should be placed prominently on the medical record.

(1) Residents ***Without*** Chronic Pulmonary Problems:

Residents who develop the following need further followup:

- Hemoptysis, or
- Cough for ≥ 2 weeks, and two or more of:
  - Fever that lasts more that 1 week;
  - Sputum production for more than 1 week;
  - Feeling of fatigue for more than 2 weeks;
  - Night sweats (heavy perspiring thru pajamas and sheets);

[5] Each sputum specimen should be sent for AFB (acid fast bacilli) smear, culture, and drug susceptibility testing. Smears give an indication of infectiousness and should be available in 24 hours, cultures confirm a TB diagnosis and take 3-8 weeks.

- Unexplained weight loss (approx. 10% or more of usual body weight)

A physician should be consulted, an order obtained for chest X-ray, and 3 sputums for AFB (and C & S, if indicated). The 3 sputums should be collected on 3 consecutive days and sent on the day collected. The lab should be called for AFB smear[5] result within 2 days for each specimen.

If any of the sputums are AFB smear positive, the person should be considered a suspect infectious TB case and be placed in respiratory TB isolation until they are on medicine and have clinical and bacterial evidence that they are no longer infectious (usually 3 consecutive negative AFB smears). If isolation is not possible, the resident must be transferred to a facility that can provide TB isolation. The resident may return when they have become non-infectious, and are on a Health Department approved TB treatment regimen. (See Section II, E. ISOLATION).

Residents whose three sputums for AFB are all negative, may stay in the facility. They may be started on TB treatment, if they clinically appear to have TB, until culture results are known. ***If a resident is diagnosed with TB, call TB Control to assure the case has been reported.***

(*2*) *Residents **With** Chronic Pulmonary Problems:*

Residents who develop the following symptoms need further follow-up:

- Hemoptysis, or
- Cough has increased: lasting more than 2 weeks, and who have at least 2 of the following symptoms:

  - Fever that lasts more that 1 week;
  - Sputum production has increased and/or changed color (e.g. whitish to green or yellow);
  - Feeling of fatigue for more than 2 weeks;
  - Night sweats (heavy perspiring thru pajamas and sheets);
  - Unexplained weight loss (approx. 10% or more of their usual body weight)

A physician should be consulted and the patient examined. The physician should indicate a diagnosis, document any chest x-ray findings, and a plan for follow-up. If symptoms persist or worsen,

the physician should be notified, and TB should be considered if it has not already been ruled out. Anytime TB is part of the differential diagnosis, 3 sputums for AFB should be collected on 3 consecutive days and sent on the day collected. The lab should be called for smear[5] result within 2 days for each specimen.

If any of the sputums are smear positive, the person should be considered a suspect infectious TB case and be placed in respiratory TB isolation until they are on medicine and have clinical and bacterial evidence that they are no longer infectious (usually 3 consecutive negative AFB smears). If isolation is not possible, the resident must be transferred to a facility that can provide TB isolation. The resident may return when they have become non-infectious, and are on a Health Department approved TB treatment regimen. (See Section II, E. ISOLATION).

Residents whose three sputums for AFB are all negative, may stay in the facility. They may be started on TB treatment, if they clinically appear to have TB, until culture results are known. ***If a resident is diagnosed with TB, call TB Control to assure the case has been reported.***

C. Staff / Volunteers

Staff who develop the following need further follow-up:

- Hemoptysis or
- Cough that lasts more than 2 weeks, and two or more of the following symptoms:

  - Fever that lasts more than 1 week,
  - Sputum production for more than 1 week,
  - Feeling of fatigue for more than 2 weeks,
  - Night sweats
  - Unexplained weight loss (approximately 8 lbs. or more)

These staff should remain off work until the diagnosis of TB is excluded, or, if TB is diagnosed, until they become noninfectious. A note from their treating physician will be needed before they return to work. ***If an employee is diagnosed with active TB disease, call TB Control (692-8610) to assure the case has been reported.***

D. Isolation

(1) Residents

Residents with suspected infectious pulmonary TB must be placed in TB respiratory isolation until they become non-infectious**.** If the facility is unable to provide TB respiratory isolation, the resident will be transferred to a facility that can provide TB isolation until non-infectiousness is established. During transport, the patient should be masked (with a surgical mask).

(2) Staff / volunteers

Staff/volunteers who have been identified as a suspect case of infectious TB must be excluded from work until non-infectiousness is established and therapy instituted. A note from their physician stating that the person is not infectious will be needed for the individual to return to work. You may call TB Control for verification of the worker's non-infectious status.

(3) TB Respiratory Isolation

To provide TB respiratory isolation, the facility must have TB isolation room(s) that are:

- single patient rooms
- special ventilation, which meets current standards for the purpose of TB isolation[6]

<Insert facility policy which ensures above procedures if facility is able to provide TB Isolation.>

(4) Non-Infectiousness

A resident or staff may return to the facility when non-infectiousness has been established by meeting the following criteria:[7]

- Has negative sputum smear for AFB on 3 separate days; and

- Has completed at least 2 weeks of multidrug anti-tuberculosis therapy to which his/her organisms are likely to be susceptible;* and

[6] For discussion of these standards, refer to Section 5197 Prevention of Occupational Tuberculosis, Title 8, Calif. Code of Regulations, Division 1, Chapter 4, Subchapter 7, Group 16, CONTROL OF HAZARDOUS SUBSTANCES, Article 109, Hazardous Substances and Processes; and current Centers for Disease Control and Prevention: Guidelines for Preventing the Transmission of Tuberculosis in Healthcare Facilities, Second Edition.

[7] This criteria was established by the California Tuberculosis Controller Association (CTCA). See Attachment F, "Guidelines for the Placement of Tuberculosis Patients Into High Risk Settings" 9/92.

- Has shown symptomatic improvement; and
- Will have continued close medical supervision.

*If the patient has not had positive sputum AFB smears, placement or return to work can be considered before the completion of 2 weeks of therapy.

E. Treatment

Centers for Disease Control/American Thoracic Society recommendations should be followed in treating and managing persons with suspected or confirmed TB. Each dose of medication should be dispensed by a staff person who watches the patient swallow the pills and who is trained to monitor for drug toxicity.

F. Investigation of Contacts (Exposure Follow-up)

Contact Follow-up:

As soon as a diagnosis of infectious pulmonary TB is suspected, follow-up of exposed contacts will be initiated.

Guidelines established for Long Term Care facilities are outlined in Appendix III of CDC's Prevention and Control of Tuberculosis in Facilities Providing Long-Term Care to the Elderly, July 1990. (Attachment G, Investigation for Contacts). These guidelines, in conjunction with case-specific recommendations from the local TB Control Program, will be followed when performing an exposure follow-up. Identified contacts should be notified of exposure and be given follow-up recommendations in writing.

Preventive Therapy:

Contacts who have documented Mantoux skin test conversions and no evidence of active TB, should be offered at least 6 months of preventive therapy unless medically contraindicated.

Contacts who have had significant exposure to an infectious case and who are at high risk to progress to disease if infected (e.g., HIV-infected persons), should be offered preventive therapy regardless of their skin test reaction. After 3 months of preventive therapy, those who were skin test negative should have the skin test repeated. Therapy may be discontinued if the skin test is still negative and contact with the infectious case is broken. Persons with severe immunocompromise (eg., HIV-infected, immunosuppressive therapy) may need to complete 6-12 months, even if skin test remains negative.

When preventive therapy is recommended, but the individual refuses or is unable to complete the recommended course, they will be advised to seek prompt medical attention if signs or symptoms of active TB develop. Routine annual chest x-rays of tuberculin reactors are not useful for detecting disease when the person is asymptomatic.

III. ASSESSMENT

The following information will be reviewed annually with the Infection Control committee:

- Number/percent of residents and staff with positive Mantoux tests;
- Number/percent of persons who convert their Mantoux test after employment;
- Number/percent of residents and staff diagnosed with active tuberculosis.

(Attachment H, TB Surveillance/Assessment Record, may be used to record this data.)

IV. EDUCATION

Training of staff and volunteers will occur on hire and annually. TB inservices will include:

- Groups at risk for TB (including impact of HIV infection);
- Transmission and pathogenesis;
- Diagnosis and treatment of:

  Infection:

  - Positive skin test, no active disease;
  - Preventive therapy.

  Disease:

  - Symptoms
  - Work up: Infectious vs. not infectious
  - Treatment: Drug susceptible vs. multi-drug resistant.

- Facility TB Control Plan

- Use and limitations of all methods used by the facility to prevent TB exposure;
- Employer's responsibility
- Employee's responsibility
- Surveillance

GUIDELINES FOR INTERPRETATION AND FOLLOW-UP OF TB SKIN TEST REACTIONS IN CALIFORNIA

The following guidelines have been developed by the State Tuberculosis Control Program in consultation with the Executive Committee of the California Tuberculosis Controllers Association. These guidelines are Official State Recommendations and have been endorsed by the California Tuberculosis Controllers Association.

1. A REACTION OF 5 mm OR MORE OF INDURATION SHOULD BE CONSIDERED POSITIVE IF THE INDIVIDUAL MEETS ANY OF THE FOLLOWING CRITERIA:

a. Has had close, recent contact with an infectious case of tuberculosis;
b. Has a chest x-ray consistent with tuberculosis;
(This statement applies to the diagnostic evaluation of an ill person for whom tuberculosis is considered in the differential diagnosis and does not mean to imply that all persons with ≥ 5 mm reactions should have chest films taken).
c. Is immunosuppressed;
d. Is infected with HIV; or
e. Is a member of a group at high risk for HIV infection.

Follow-up Protocol for Person in the 5mm or More Category

For groups a. – d. immediately above, follow-up should consist of a chest film, if not already done, to rule out active disease and, if no active disease is present, placement on chemoprophylaxis unless medically contraindicated. Age is not a medical contraindication in the 5 mm or more group.

For group e., follow-up should consist of a chest film and an HIV test. If disease is ruled out, the individual should be placed on preventive therapy if positive for HIV. If the individual is negative for HIV or HIV status is unknown, chemoprophylaxis need not be given for reactions <10 mm.

Ordinarily, once an individual receives a course of preventive therapy another course is not required even when an individual subsequently is a contact to an infectious case of tuberculosis. However, due to the possibility of re-infection in immunosuppressed and HIV infected person upon any exposure to tuberculosis, person in these groups should be considered for a course of preventive therapy each time they are named as a contact, regardless of previous episodes of preventive therapy.

2. A REACTION OF 10 mm OR MORE OF INDURATION SHOULD BE CONSIDERED POSITIVE IN ALL OTHER PERSONS

Follow-up Protocol for Persons in the 10 mm or More Category

Follow-up should consist of a chest film to rule out active disease and, if no active disease is present, consideration for placement on chemoprophylaxis. Persons 35 years of age or greater need not be placed on preventive therapy unless one of the following additional risk factors is present:

a. the chest film has an abnormally consistent with past disease;
b. recent conversion has been documented;

c. the consequences to others should disease occur is significant;
d. as clinically indicated in medial conditions which increase the risk or seriousness of tuberculosis are present (e.g., silicosis, diabetes mellitus, certain hematologic and reticuloendothelial diseases such as as leukemia or Hodgkin's disease, end-stage renal disease, diseases associated with substantial weight loss or undernutrition, or diseases associated with immunosuppressive therapy); or
e. Is a member of a group at high risk for HIV infection.

NOTE:

No set of guidelines can cover all individual TB skin test situations, which can and will arise. Thus when questions on individual situations not covered by these guidelines do arise, consult with your local health department Tuberculosis Control program for further information. 4-17-91

TWO-STEP TB SKIN TESTING

POLICY AND PROCEDURE
(For rationale, see reverse side)

Policy:

In order to accurately identify residents and staff who may have been infected in the past, a two-step skin test procedure should be followed.

Who gets a two -step test?

- Any adult resident or staff who is ≥ 55 years of age, and
- Does not have documentation* of a past positive Mantoux skin test or has not been TB skin tested within the last five years.

Procedure:

1. Place the first Mantoux TB skin test and read the result in 48-72 hours. Measure, record, and interpret any induration according to the current California guidelines for interpreting Mantoux skin tests.

2. If the first test is negative:

   - Place a second Mantoux test 7-20 days after the initial test was given; and
   - Read the result in 48-72 hours; and
   - Measure, record, and interpret any induration according to the current California guidelines.
     - Negative test results past indicate the person has not been infected with TB in the past. Followup: Staff will need annual Mantoux testing. Residents need no follow-up.
     - Positive test results indicate the person has been infected with TB in the past. Follow-up: Refer all for initial chest X-ray and evaluation.

3. If the first test is positive:

   The person was infected with TB in the past. Refer for chest X-ray and evaluation for preventive therapy.

Miscellaneous Screening Information:

1. BCG vaccination is not a contraindiction to TB skin testing and should not interfere with the interpretation of the test.

2. A chest X-ray is not an adequate substitute for Mantoux skin testing. An X-ray does not identify TB infection. Those found to have a positive Mantoux should be referred for a chest X-ray and evaluation for preventive therapy. After the initial evaluation, these persons do not need repeat chest X-rays unless they develop symptoms of active TB.

Documentation should be written and include the type of test given (Mantoux intradermal) vs. Tine (multiple puncture), date test was done, and millimeters of induration (not just “positive”).

TWO-STEP TUBERCULIN SKIN TESTS (MANTOUX)
(For procedure, see reverse side)

Rationale:

The ability for a person who is infected with M.tuberculosis to react to a tuberculin skin test may decrease over the years. This waned sensitivity can result in a false negative TB skin test. If this occurs, a person will be misclassified as a non-reactor (not infected with TB). Waned sensitivity can occur at any age, but is more commonly found in persons over 55 years of age.

It has been shown that serial skin testing may produce a recall of a past, waned hypersensitivity. This has been called the Booster Phenomenon. The first skin test acts to boost the immune system to recall the infection making subsequent skin tests appropriately positive. Studies indicate that it takes one week for the booster effect to fully develop. The boosted reaction may persist for many years.

When TB skin testing of adults is to be repeated periodically, it is important to establish an accurate baseline of their TB skin test status. The use of a two-step testing procedure can reduce the likelihood of incorrectly interpreting a boosted reaction (old infection) as representing a skin test conversion (recent infection).

Example:

A sixty-year old female starts to work at your facility. She is required to get a skin test on hire and will have annual testing. She does not remember when her last skin test was. The test at the time of hire is negative. At her one-year screening, she has a positive test.

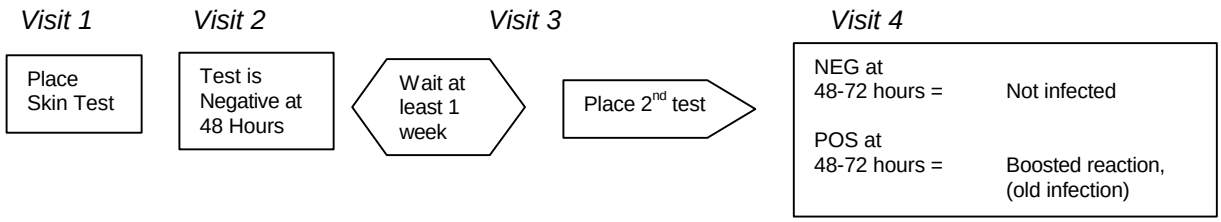
Questions:

- Did she become infected during the last year? If so, identification of a source case would be pursued and she would be a candidate for treatment of her new TB infection; or
- Does this represent a “boosted” reaction? If so, there is no source case and she would not be a candidate for preventive therapy.

Consider:

A Two-Step skin test on hire would have established a baseline.

The Two-Step Skin Test



Note: Repeated testing of persons who have <u>never</u> been infected in the past will not cause them to have a positive skin test.

RESIDENT ANNUAL TUBERCULOSIS SCREENING QUESTIONNAIRE

*(For questions in Spanish, see reverse side**)***

Resident's Name: _____ Today's Date:_____

Birth Date:___/_____/_____ Chart No. _____

Positive Skin Test Record:

Skin Test Date: /__/____ MM Induration _____
X-ray Date____/_____/_____ ❒ Normal ❒ Abnormal

Have you experienced any of the following symptoms recently?

Yes	No	
❒	❒	Chronic cough (more than two weeks duration);
❒	❒	Bring up sputum every day for one week or more;
❒	❒	Chronic feeling of fatigue, listlessness (more than two weeks in duration);
❒	❒	Fever (more than one week in duration);
❒	❒	Night sweats;
❒	❒	Unexplained weight loss (8 pounds or more, or 10% of normal body weight)

INSTRUCTIONS:

If answers to above questions are "***No",*** no chest x-ray is indicated and TB clearance may be given.

If any "***Yes"*** answers to above questions, follow-up per TB Control Plan for symptomatic patients.

Outcome of Evaluation:

❒ No active TB suspected after evaluation of patient.

❒ Active TB suspected. Resident not infectious, but placed on TB medications.

❒ Active infectious pulmonary TB suspected. Resident transferred to _____ for evaluation and TB treatment.

Reviewer Signature _____ Date _____/_____/_____

RESIDENT ANNUAL TUBERCULOSIS SCREENING QUESTIONNAIRE

(For questions in English, see reverse side)

Resident's Name: _____ Today's Date: _____

Birth Date: ____/____/____ Chart No. _____

Positive Skin test Record:

Skin Test Date: ____/____/____ MM Induration _____

X-ray Date: ____/____/____ ❒ Normal ❒ Abnormal

Ha sufrido usted algunos de los siguientes síntomas?

SÍ	No	
❒	❒	Tos crónica que dure más de dos semanas?
❒	❒	Tener esputo (gargajos) todos los días por una semana or más?
❒	❒	Una sensación de fatiga crónica, indeferencia que dure por más de dos semanas?
❒	❒	Fiebre que dure por más de una semana?
❒	❒	Sudores por la noche?
❒	❒	Pérdida inexplicable de peso (de 8 libras o más)?

INSTRUCTIONS:

If answers to above questions are "***No",*** no chest x-ray is indicated and TB clearance may be given.

If any "***Sí"*** answers to above questions, follow-up per TB Control Plan for symptomatic patients.

Outcome of Evaluation:

❒ No active TB suspected after evaluation of patient.

❒ Active TB suspected. Resident not infectious, but placed on TB medications.

❒ Active infectious pulmonary TB suspected. Resident transferred to _____ for evaluation and TB treatment.

Reviewer Signature _____ Date _____

Title 22

BARCLAYS CALIFORNIA CODE OF REGULATIONS

Licensing and Certification of Health Facilities and Referral Agencies

§ 70723. Employee Health Examinations and Health Records.

(a) Personnel evidencing signs or symptoms indicating the presence of an infectious disease shall be medically screened prior to having patient contact. Those employees determined to have infectious potential as defined by the Infectious Control Committee shall be denied or removed from patient contact until it has been determined that the individual is no longer infectious.

(b) A health examination, performed by a person lawfully authorized to perform such an examination, shall be required as a requisite for employment and must be performed within one week after employment. Written examination reports, signed by the person performing the examination, shall verify that employees are able to perform assigned duties.

(1) Initial examination for tuberculosis shall include a tuberculin skin test using the Mantoux method using a 5 Tuberculin Unit dose of PPD tuberculin stabilized with tween-80, the result of which is read and recorded in millimeters of induration. If the result is positive, a chest film shall be obtained. A skin test need not be done on a person with a documented positive reaction to PPD but a baseline chest x-ray shall be obtained.

(2) Policies and Procedures that address the identification, employment utilization and medical referral of person with positive skin test including those who have converted from negative to positive shall be written and implemented.

(3) An annual skin test for tuberculosis shall be performed on those individuals with a previously documented negative tuberculin skin test. If an individual with a previously documented negative skin test has a subsequent positive reaction, a chest X-ray shall be obtained.

(4) Less frequent testing for tuberculosis, but never less than every four years, may be adopted as hospital policy when documented in writing as approved by the Infection Control Committee, the medical staff, and the health officer of the health jurisdiction in which the facility is located.

(c) Employee health records shall be maintained by the hospital and shall include the records of all required health examinations. Such records shall be kept a minimum of three years following termination of employment.

(d) Personnel shall be made aware of recommended vaccinations for preventable diseases that can be prevented by vaccination.

Note: Authority cited: Sections 208(a) and 1275. Health and Safety Code. Reference: Section 1276, Health and Safety code.

HISTORY

1. Amendment of subsection (b) filed 3-313-90; effective thirtieth day thereafter (Register 80, No.11).
2. Amendment filed 6-15-89 as an emergency; operative 6-15-89 (Register 89, No. 25). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 10-13-98.
3. Certificate of Compliance as to 6-15-89 order transmitted to OAL on 10-13-89 and disapproved by OAL on 11-13-89 (Register 89, No.46).
4. Amendment refiled 11-16-89 as an emergency; operative 11-16-89 (Register 89, No.46). A Certificate of Compliance must be transmitted to OAL within 120 days or the section will be reinstated as it existed prior to the emergency on 3-16-90.
5. Certificate of Compliance as to 11-16-89 order including amendment of subsections (a), (b) and (d) transmitted to OAL 3-15-90 and filed 4-16-90 (Register 90, No. 17).

EMPLOYEE ANNUAL TUBERCULOSIS SCREENING QUESTIONNAIRE

Employee's Name:_____ Today's Date: ____/____/____

Birthdate: ____/____/____ Work Location: _____

Positive Skin Test Record:

Mantoux Skin Test Date: ____/____/____ MM Induration: _____

Chest X-Ray Date: ____/____/____ Result: ❑ Normal ❑ Abnormal

INH Preventive Therapy: ❑ Took _____ months of INH
❑ Refused INH
❑ Not indicated

****

To be completed by employee:

Have you experienced any of the following symptoms recently?

Yes	No	
❑	❑	Chronic cough (more than two weeks duration)?
❑	❑	Bring up sputum every day for one week or more?
❑	❑	Chronic feeling of fatigue, listlessness (more than two weeks in duration)?
❑	❑	Fever (more than one week in duration)?
❑	❑	Night sweats?
❑	❑	Unexplained weight loss (8 pounds or more)?

****

For Facility Use:

❑ Employee reminded to report symptoms if they occur. TB clearance given.

❑ Symptoms noted. Comments:

_____
_____
_____
_____
_____
_____
_____
_____

Outcome of Evaluation:

❑ No active TB suspected after evaluation of employee.

❑ Active TB suspected. Employee not infectious, but placed on TB medications.

❑ Active infectious pulmonary TB suspected. Employee off work until non-infectious.
Suspect case reported toTB Control. Exposure follow-up initiated.

Reviewer's Signature _____ Date ____/____/____

GUIDELINES FOR THE PLACEMENT OF TUBERCULOSIS PATIENTS
INTO HIGH RISK SETTINGS

In hospitals and other inpatient facilities, any patient suspected or known to have infectious tuberculosis should be placed in appropriate respiratory isolation to prevent tuberculosis transmission. However, the majority of infectious tuberculosis patients can return to (or continue living in) their homes and undergo ambulatory treatment, as long as they remain under close medical supervision.

Special issues arise when the infectious tuberculosis patient is homeless or lives in an institution or other setting where susceptible persons are at risk of acquiring tuberculosis. The purpose of these guidelines is to prevent tuberculosis transmission from such patients once discharged from health care facilities.

These guidelines have been developed by the California Department of Health Services Tuberculosis Control Branch in consultation with the California Tuberculosis Controllers' Association. For further information and assistance, please contact your local health department's tuberculosis control program.

GENERAL CONSIDERATIONS

The timing of discharge and the selection of an appropriate living site should take into consideration the following factors:

A. The patient's infectiousness

Infectiousness is greatest among patients with pulmonary TB who are coughing, have pulmonary cavitation on chest radiograph, and have acid fast bacilli (AFB) on sputum smear. Patients' willingness or ability to cover their mouths when coughing, length of time on adequate chemotherapy, and their adherence to the continuation of adequate chemotherapy are other factors correlated with Infectiousness of pulmonary tuberculosis. Those with extrapulmonary TB are usually not infectious, unless the disease is in the larynx.

B. The potential for transmission of *M*. tuberculosis in the living environment into which the patient is being placed

Examples of living environments where tuberculosis transmission has been documented include: prisons, jails, hospitals, congregate living sites for person infected with the human immunodeficiency virus (HIV), nursing homes, drug treatment programs, shelters for the homeless, migrant camps, and other group settings. Patients going to live in such facilities must meet all criteria listed under II below. Patients known or suspected to have infectious (communicable) tuberculosis should not be placed in such facilities unless adequate AFB isolation (as described in the first reference below) is available.

C. The likelihood that exposed person, if infected, will develop active tuberculosis

Co-infection with HIV is the strongest risk factor so fare identified for progression to active tuberculosis among person infected with *M*. tuberculosis. Other risk factors include treatment with immunosuppressive medications, chronic renal failure, diabetes, silicosis, and malnutrition.

Attachment F

D. Drug resistance of the patent's tuberculosis organisms

While drug susceptibility patterns of the patient may not be known at the time of placement, risk factors for resistance include prior inadequate tuberculosis treatment, birth outside the US, or contact (in a household or institution outbreak) with an infectious case known to have drug resistance.

II. REQUIREMENTS FOR PLACEMENT IN HIGH RISK SETTINGS

Patients known or suspected to have active TB disease should be noninfectious before placement into high risk living settings such as those listed in I. B. above. The patient should:

A. have negative sputum smears on 3 separate days, **AND**

B. have completed at least 2 weeks of multidrug anti-tuberculosis therapy to which his/her tuberculosis organisms are likely to be susceptible, * **AND**

C. have shown symptomatic improvement, **AND**

D. have continued close medical supervision, including directly observed therapy if needed.

* If the patient has not had positive sputum smears, placement can be considered before the completion of 2 weeks of therapy, provided that criterion D is fulfilled.

In some cases, a legal order of isolation may be necessary. This is initiated by the local health officer only after other options are explored and due process has been granted in accordance with state and local public health laws and regulations.

OTHER MEASURES FOR PREVENTING TUBERCULOSIS TRANSMISSION

Preventing tuberculosis transmission in high-risk settings requires a comprehensive TB control program including containment, surveillance, and assessment described in the reference below.

REFERENCES

1. Centers for Disease Control. Guidelines for preventing the transmission of tuberculosis in health-care settings, with special focus on HIV-related issues. MMWR 1990; 39(no. RR-17); 1-29

2. Centers for Disease Control. Prevention and control of tuberculosis in correctional institutions: Recommendations of the Advisory committee for the Elimination of Tuberculosis. MMWR 1989;38(no. 18): 313-320, 325

3. Centers for Disease Control. Prevention and control of tuberculosis among homeless persons: Recommendations of the Advisory Committee for the Elimination of Tuberculosis. MMWR 1992:41(no. RR-5); 13-23.

4. Centers for Disease Control. Nosocomial transmission of multidrug-resistant tuberculosis among HIV-infected persons – Florida and New York, 1988-1991. MMWR 1991;40(no.34):585-591.

5. Centers for Disease Control. Tuberculosis outbreak among persons in a residential facility for HIV-infected persons – San Francisco. MMWR 1991; 40(no.38):649-652.

California Department of Health Services
Tuberculosis Control Branch 11/24/92

Appendix III

Investigation for Contacts

Contacts of persons with newly diagnosed tuberculosis are at risk of infection and disease. The risk to contacts is related to various factors pertaining to the person who has the source case (the "source patient"), the contact, and the environment that they share. Many factors interact to influence the transmission of infectious particles (droplet nuclei) from the source patient to the contact.

As soon as the diagnosis is reasonably established on laboratory and/or clinical bases, investigation of contacts should begin. Health-care personnel should not wait for positive cultures if history, sputum smears, and chest radiographs are suggestive of tuberculosis.

A. Development of Transmission Probability Data

When a source patient has been identified, the appropriate procedure in contact investigation entails the development of a data base and an evaluation of each of the factors noted below. These data are usually gathered by interviewing the source patient and by reviewing related historic and laboratory records. A visit to the source patient's home or place of employment will usually be necessary to assemble a satisfactory initial data base.

Source-patient characteristics. Any person who is generating aerosolized particles containing tubercle bacilli is a potential transmitter of infection. Factors that indicate the probability of spreading tuberculosis infection are:

- If the source patient is not receiving adequate antituberculosis chemotherapy, the probability of his or her producing infectious particles is enhanced.
- The presence of acid-fast bacilli in the appropriately examined sputum smear is indicative of a greater potential for infection.
- The ability to culture Mycobacterium tuberculosis from secretions of the source patient is less important quantitatively as an indicator than is the positive sputum smear.
- The presence of tuberculous laryngitis increases infectiousness.
- The volume and viscosity of respiratory secretions influence the production of infectious particles; high volume and watery sputum are regarded as risk factors.
- Forceful exhalation (e.g., singing or shouting) may increase the potential for producing infectious particles.
- Prolonged duration of respiratory symptoms may augment the likelihood that infection will be transmitted.

Attachment G

Environmental air factors. Air is the vehicle by which the infectious particle or droplet nucleus is transported from the source patient to susceptible persons. The greater the concentration of these droplet nuclei in air shared by the source patient and his or her

associates, the greater the risk to these contacts. The following factors alter the concentration of infectious particles in the air:

- The volume of air common to the source patient and contact is critical. If low, the concentration of infectious particles is increased (e.g., as in sharing a small room).

- Ventilation with outside air dilutes the concentration of potentially infectious droplets.

- Recirculating air may result in the accumulation of high concentrations of infectious particles because droplet nuclei remain suspended in the air (e.g., ships, hospitals, and other structures with closed-circuit heating and air-conditioning systems).

- Filtering air by high-efficiency particulate air (HEPA) filters removes the droplet nuclei from recirculated air.

- Ultraviolet irradiation of the upper air within the shared space (when feasible) may reduce the spread of infection by killing tubercle bacilli suspended in the droplet nuclei.

Contact risk factors. Persons who have recently shared air with the source patient may be considered potentially infected contacts. The following factors are known to modify the risk of infection for these persons:

- Prior infection with tuberculosis, as indicated by a significant skin-test reaction before exposure to the identified source patient, reduces risk.

- Increased time in association with the source patient influences the probability of infection.

- Physical closeness between the source patient and the contact may influence the likelihood of infection.

B. Structuring a Contact Investigational Program

Establishment of Investigational priorities. The estimated probability of transmission, based on information obtained by following the steps described above, should influence the priority, rapidity, and thoroughness with which a contact investigation is conducted. By using this systematic approach, appropriate and productive public health programs can be implemented.

Classification of contacts. For each source patient, the contact investigation should proceed in an orderly manner, starting with persons who are most likely to have been infected. Members of the immediate family or others who have shared accommodations with the source patient in the recent past usually are labeled

household contacts. Contacts in working, leisure, or other settings are designated by other terms such as “close”, “intimate”, or “casual”. The most important consideration in a contact investigation is the probability of infection among contacts; therefore, the first step is to allocate contacts into higher and lower-risk contacts.

A higher-risk contact is defined as any person who shared the environment air with a source patient for a relatively longer time and who has other risk factors relatively higher than those of other known contacts. Nursing home/facility residents sharing the same wing or ventilation circuit should usually be considered close contacts.

C. Establishing Limits for Contact Investigations

By initially evaluating the higher-risk contacts for evidence of tuberculous infection and/or disease, the actual infectiousness of the source patient can be inferred. The following are guidelines for limiting the extent of a contact investigation:

- Initiate investigation with higher-risk contacts; If there is no evidence of recent transmission of infection in this group, extending the investigation is not appropriate.

- If data indicate recent infection in the higher-risk group, extend the limits of investigation to progressively lower-risk contacts until the levels of infection detected approximate the levels of infection in the local community.

- At each stage of the investigation, establish the number and identity of contacts to be examined. Establishing such a denominator helps to assure that no contact who should be examined is missed.

TB SURVEILLANCE/ASSESSMENT RECORD

Institution:_____ Year:_____

Positive Mantoux Tests:

	Number of positive	*% of total residents*	*% of total staff*
Residents			
Staff			

Mantoux Test Conversions (skin test negative to positive):

	Number converted	*% of total residents*	*% of total staff*
Residents			
Staff			

Staff Name	*Date of conversion*	*Work location*	*Source of exposure known?*	
			Yes	*No*

Active Disease:

	Number with active TB	*% of all residents*	*% of all staff*
Residents			
Staff			

TB case name	*Designate : R= Resident S= Staff*	*Location*	*Contact to another case?*		*Reported on OSHA log?*		*If no, give reason*
			Yes	*No*	*Yes*	*No*	